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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/657,496  
Filing Date: September 08, 2003  
Appellant(s): BENDER, PAUL T.

\_\_\_\_\_  
Attorney Charles Hieken  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed September 14, 2010 appealing from the Office action mailed March 31, 2010.

**(1) Real Party in Interest**

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application:

Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as anticipated by Patil et al.

Claims 3-5, 7-9, and 11 are rejected under 35 U.S.C. 103(a) as unpatentable over Patil et al. in view of Murty.

Claims 2, 10, and 12-72 are canceled.

**(4) Status of Amendments After Final**

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

**(5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office

action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

#### **(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

#### **(8) Evidence Relied Upon**

US 5,070,284	Patil et al.	12-1991
US 4,815,575	Murty	03-1989

#### **(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

##### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Patil et al. (US 5,070,284).

Patil et al. disclosed an active vehicle suspension system with fail-safe operation comprising: an actuator 100 with an armature and a stator, the stator having at least one coil with coil ends, power electronics connected to the coil ends to deliver power to the actuator through the coil ends, and a fail-safe clamping circuit 118, 120, 138 connected to the coil ends powered by energy produced from the movement of the actuator that is directly conveyed to the clamping circuit from the coil ends, to passively damp the actuator during a failure of the power electronics by clamping the coil ends together through relay 120; wherein when the machine 104 is operated as an alternator in the fail-safe mode, electric currents are generated by the rotation of the armature via the screw threads 112 and the screw cage 106, and the generation of electric currents will definitely generate a back electromotive force which powers the clamping circuit through the coil assembly.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3-5, 7-9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patil et al. in view of Murty (US 4,815,575).

Re-claims 3 and 4 Patil et al. failed to disclose multiple coils and the clamping circuit electrically connects coil ends together to change the passive damping

characteristic of the actuator and failed to disclose the clamping circuit comprises a solid-state device.

Murty teaches, as shown in fig. 2, the use of a multiple-phase coil assembly A,B,C, a MOSFET normally-open solid state switch 30, which is a silicon device, electrically connecting at least one coil end, see col. 3, lines 52-57.

It would have been obvious to one of ordinary skill in the art to merely provide the suspension system of Patil et al. with the known multiple-phase coil assembly which is a MOSFET normally-open solid-state switch and the switch electrically connecting at least one coil end, as taught by Murty, in order to change the passive damping characteristic of the actuator.

Re-claim 5 Patil et al. disclosed the clamping circuit comprising a rectifier 118 and a single unidirectional switch.

Re-claims 7 and 8, Patil et al. failed to disclose the use of a supplemental circuit, which comprises a bipolar Royer oscillator capable of operating at an input voltage of approximately 0.5 volts, for boosting the back EMF.

It would have been obvious to one of ordinary skill in the art to use a supplemental circuit to boost the voltage in order to enable the switch of the clamping circuit. As for the supplemental circuit comprises a bipolar Royer oscillator capable of operating at an input voltage of approximately 0.5 volts, it would have been obvious to one of ordinary skill in the art to use a bipolar Royer oscillator as merely a design choice as a selection of specific well known elements to perform a specific function.

Re-claim 9 Patil et al. was silent to disclose wherein the clamping circuit comprises switch circuitry enabled during vehicle startup and shutdown.

It would have been obvious to one of ordinary skill in the art to enabling the clamping circuit during vehicle startup and shutdown in order to ensure the generation of a force during a failure of the suspension device so as to provide safety.

Re-claim 11 Patil et al. failed to disclose wherein the clamping circuit comprises switch circuitry pulsed to change the passive damping characteristic of the actuator.

Murty teaches, as shown in fig. 2, wherein the output of the microcomputer 35 is a pulse modulated switching voltage which is provided to a switch 30 (part of the clamping switch) and thus control resistor 23 and the damping of the suspension, see col. 3, lines 52-57.

It would have been obvious to one of ordinary skill in the art to merely provide the suspension system of Patil et al. with the known use of the output of the microcomputer, a pulse modulated switching voltage, which is provided to a switch (part of the clamping switch) and thus control resistor and the damping of the suspension, as taught by Murty, in order to change the passive damping characteristic of the actuator so as to adjust the damping.

#### **(10) Response to Argument**

A.) With respect to page 5 under paragraph: The title of --- "FAILSAFE --- SUSPENSION" (lines 4-11) of the Appeal Brief Appellant argued that: "The reference describes the relay as having normally closed and normally open contacts; however, it

can be seen that the normally closed contacts are the ones that connect a failsafe load in the event of a failure in the system. If there was a failure, power to operate the electronics may not be available, and using the normally closed contacts ensures that the leads get clamped, and the failsafe damping resistors are used when the failure occurs. The reference does not describe where the "suspension enable" signal power comes from. The reference clearly fails to disclose that it is provided by the back EMF generated from the motion of the actuator as disclosed and claimed in this application".

Patil et al. disclosed "The upper end of the screw threaded shaft 112 carries the armature of the electric machine 104. When the machine 104 is operated as an alternator, such as in the fail-safe mode of the present invention, electric currents are generated by rotation of the armature by the interaction of the screw thread with the ball screw cage 106" (see col. 5, lines 11-16). Note that the actuator 100 has a stator and the generation of electric currents will definitely generate a back electromotive force which powers the clamp circuit via the coil assembly.

Additionally, the claim language is all about the "fail-safe clamping circuit" and not the "switch circuitry".

Note the Amendment dated January 15, 2010 wherein the "switch circuitry" was taken out from the claim language.

B.) With respect to page 5, last paragraph and page 6, lines 1-2 of the Appeal Brief Appellant argued that: "Because the system claimed here uses a normally open switch, (High power normally closed solid state relays do not exist.), in the event of



failure the invention applies power from somewhere to operate the switch do that the switch contacts can be closed. The invention disclosed and claimed in this application obtains this power from the movement of the actuator directly. The power to hold the switch closed is different from the power that flows through the switch when the switch is closed".

Note that "a normally open switch" in Appellant's argument above is not claimed.

C.) With respect to page 6, second paragraph of the Appeal Brief Appellant argued that: The reference fails to disclose "fail-safe clamping circuit connected to coil ends powered by energy produced from movement of the actuator" as called for by the claims. The reference therefore does not anticipate the rejected claims.

Note: Patil et al. disclosed, as shown in Fig. 1-2, a fail-safe clamping circuit 118, 120, 138 connected to coil ends A, B, C powered by energy produced from the movement of the actuator 100.

D.) With respect to page 8, second to the last paragraph of the Appeal Brief Appellant argued that: We have shown above that the primary reference does not anticipate claims 1 and 6 upon which claims 3-5 and 7-9 and 11 depend. It is therefore impossible to combine the references to meet the limitations of these claims.

Note: Appellant has not provided specific arguments to these claims, Examiner maintains the rejections are proper.

E.) With respect to page 9, third paragraph of the Appeal Brief Appellant argued that: The invention disclosed in this application and claimed in Claim 4 uses a solid state switch or relay to clamp the leads. The reference discloses using mechanical relays.

Note: Par. 7 of the Office Action mailed on March 31, 2010, Patil et al. failed to disclose the clamping circuit comprises a solid-state device. Murty reference is used for the known teaching of the use of a multiple-phase coil assembly A,B,C a MOSFET solid state switch 30, electrically connecting at least one coil end. One of ordinary skill in the art would use solid state electronics in the device of Patil et al. as the use of solid state electronics has many advantages since they are cheaper and more reliable (no moving parts).

Appellant admits that solid state is advantageous.

#### **(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Mariano Sy/

/Robert A. Siconolfi/

Supervisory Patent Examiner, Art Unit 3657

Conferees:

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